

FORUM

For the latest in red meat R&D

Demystifying Dystocia (Reading the Signs)

Enoch Bergman DVM



Enoch the Cow Vet





Costs associated with Dystocia

- Dead calves
- Dead cows
- Stressed calves
 - Poor-doers
 - Thermoregulation
 - Failure to ingest colostrum
- Stressed cows
 - Diminished Dam Fertility
 - 15.9% lower conception rate in next joining
 - Calving Paralysis
 - Prolapse
 - Retained Foetal Membranes
- Labour Costs associated with increased supervision of high dystocia herds
- Treatment Costs





Causes of Dystocia

- Relative Foetal Oversize
 - 90% of cases
- Abnormal Presentation, Position, or Posture
 - 5%
- Other Causes
 - Uterine Inertia
 - Fatigue, disease, nutritional causes
 - Foetal Monsters
 - Uterine Torsion
 - Abnormal Cervix





Stages of Labor

- Stage One
 - Begins with first contractions
 - Ends when foetal parts enter the birth canal
 - Normally less than six hours
- Stage Two
 - Begins with observation of water sac
 - Ends with delivery of calf
 - One half to four hours
- Stage Three
 - From delivery to passing of foetal membranes
 - Usually within 12 hours





Stage One

- Nesting Behaviour
 - Separating from Mob
 - Uneasiness
 - Up and down
- Displacement of cervical plug
- Pain
 - Abdominal discomfort
 - Kicking at belly
 - Wringing of tail





Stage One

- Uterine contractions
 - Initially every 15 minutes progressing to every three minutes
 - Cow will often arch her back with each contraction
 - Source of uneasiness and pain
 - Initiates preliminary placental detachment
- Cervical dilatation
 - External os precedes internal os
 - Entrance of foetal parts into cervix required to fully dilate cervix (Ferguson Reflex)





Stage One

- Duration of Stage One
 - Begins with nesting, ends with expulsion of sac
 - Normally up to six hours
 - Usually longer in heifers
- Intervention
 - If in stage one for over 8 hours
 - Why?
 - Abnormal Presentation
 - Often Breech
 - Uterine Inertia
 - Amniotic fluid
 - Especially with meconium staining





Stage Two

- Begins with expulsion of the bag
- Contractions increase to every 1-3 minutes
 - Contractions accompanied by abdominal press
 - Cow will usually lie down at this stage
 - Contractions often come in spurts followed by short lulls or rest
- Vocalization of cow evidence that cervix is still being dialated





Stage Two

- Extreme force and effort to expulse head
 - Often followed by a rest
- Shoulder and chest again require effort
 - Sometimes a cow will rest for a bit at this stage
 - Calf may begin breathing
- Hips last hurdle
 - Some cows will stand at this stage
 - Hips of calf most likely to cause nerve damage
 - Uncompressible
 - Cow may have become fatigued, prolonging hip lock













Stage Two

- Intervention
 - If abnormal presentation, position, or posture
 - If in stage one for over 2 hours and cow is not trying
 - If cow is trying and has not made progress in 30 minutes
 - If signs of cow or calf stress
 - Cow bleeding from rectum
 - Calf's head swollen
 - Meconium staining





Abnormal Presentaton – Leg Back





Breech Calf













Meconium Staining







Stage Three

- From expulsion of calf to expulsion of foetal membranes (placenta)
- Should clean within 12 hours
 - Intervention
 - If still has not cleaned within three days or begins to look systemically ill
 - Treatment
 - Pessaries
 - Systemic Antibiotics
 - Uterine Lavage











Producer Intervention Recap

- Stage One
 - If prolonged over 8 hours
 - If observe amniotic fluid
- Stage Two
 - If abnormal presentation, position, or posture
 - If prolonged over 2 hours
 - If no progress over ½ hour
 - Other signs of prolonged labour
- Stage Three
 - If has not passed membranes within 3 days





Signs of Prolonged Labor

- Large amount of foetal membranes
- Meconium stained amniotic fluid
- Blood from cows rectum
- Extremely wet flanked cow
- Swollen foetal extremities
 - Portion of calf out of abdomen of calf is swollen and congested with fluid





How hard is this delivery going to be?

- Good Signs
 - Head and feet are up
 - Foetal hooves glide in and out of vulva with each abdominal press
 - Heifer or cow vocalizes with each press
 - Sign that vulva is still being stretched
 - Foetal fetlocks are already spontaneously delivered





How hard is this delivery going to be?

- Bad Signs
 - Abnormal posture
 - Head or leg back, hooves upside down
 - Crossed forelimbs or hooves rotated with soles inward
 - Indicative of insufficient leg room
 - No movement with each abdominal press
 - Calf is wedged against pelvis
 - Evidence of Prolonged Labor





How Often Should I Check My Heifers?

- American producer guidelines suggest every three hours
 - If in stage two follow up within a half hour
- Our advice
 - Morning, Mid-day, Evening
 - Get back to check anything in stage two
 - Within an hour
 - Evening check
 - Give anything getting started a half hour then give them a hand
- Program them to calve predominately during the day, if feasible





Feeding for Daylight Calving

- Feeding cattle daily in the late evening results in higher proportion of day calvings.
 - lowa State
 - Around 2000 cows
 - Fed Before Noon or from 5 to 10 PM
 - LARRS at Miles City, Montana
 - Around 675 cows
 - Fed from 7 to 9 AM or 5 to 6 PM





Feeding for Daylight Calving







Feeding for Daylight Calving







Pulling Calves

- Minimize stress
- Cleanliness
 - Scrub up hands
 - Scrub up external vulvar and anal area if needed
 - Apply lube to your hands to facilitate examination
- Assess calf's presentation, position, and posture
 - Don't break water bag if you can help it until you have your intervention strategy planned
- Assess calf viability
- Assess cervical dilation
 - Dilate cervix manually if needed





To get tail out of way- safest!







Determining Foetal Viability

- Withdrawal Reflex
 - Pinch between hooves or pull leg
- Suckle Reflex
 - Put hand in mouth
- Blink Reflex
 - Calf will usually blink or move when eye poked
- Foetal Heartbeat
- Rectal Reflex
 - Rectum of viable calf usually tight and will contract





Pulling Calves

- Correct abnormalities of posture
- Break bag (if it hasn't already broken)
- Rule: If you can get your hand freely around the calf's head you can usually pull the calf
- Place chains on both forelimbs
 - Place loop over first three fingers to pass in
 - Place first loop well above fetlock, where leg is narrowest
 - Put eyelet on the top part of the leg
 - Place a half hitch right above the hooves
 - Remainder of chain can be draped between the hooves to keep from falling off





Optimal Calving Chain Placement



In North America, the most common method of applying obstetric chains on a bovine fetus is to place the loop of the chain above the fetlock joint and a half-hitch around the pastern. Traction is applied to the dorsal aspect of the limb. (Original art by Mr. Don Conner, College of Veterinary Medicine, University of Missouri.)

Calving Chains

- Longer Chains
 - Two people can work in a narrower race
 - Room to throw a loop and a half hitch
 - Can use wooden dowels as handles





Pulling Calves

- Add additional lubricant if needed
- The goal is to get the shoulders to clear the pelvis and the head to clear the vulva
 - You need to walk the shoulder through
 - Pull one leg until the fetlock is well past the vulva (a handsbreadth)
 - Maintain a slight pressure on the first leg while you then pull the second leg forward
- Rule: If you can clear both fetlocks 10 cm from the vulva you can usually pull the calf







Lube is your friend!

Walking the Shoulders Through







Pulling Calves

- Commence pulling from both chains simultaneously
- Rule: If you can't budge the calf with the force of two strong people you shouldn't force extraction
- Traction should be applied only when the cow is pushing
 - Abdominal and uterine pressure equivalent to the efforts of one person
 - Uterine prolapses often due to inappropriately timed traction
 - Pause occasionally to ensure you are not bringing the cervix with the calf




Pulling Calves

- Getting the head through the vulva
 - Stretch the vulva for the calf's head
- Apply traction, when cow pushes, at a slightly downward angle
- When head and front legs clear the vulva, begin rotating the calf to facilitate smooth delivery of the calf's hips





Hip Lock!







Pulling Calves

- Rotating the calf
 - Cease traction on one chain
 - Roll calf's pelvis 60 to 90 degrees
 - Requires rolling calf's thorax 90 to 180 degrees
 - Cows pelvis is oval shaped, calf is widest across the hips
 - Femurs and hips of calves are the most common cause of pelvic nerve trauma leading to post partum paralysis





Cow Pelvis







Calf Thorax in Cow Pelvis







Calf Pelvis in Cow Pelvis







Pulling Calves

- Pull hips smoothly through to commence delivery
 - If hips still lock or require extra effort best to allow calf a chance to begin breathing
 - If keep straining a hip locked calf, stressed calves will often die as they can not breath appropriately
 - Can not inflate chest due to excess pressure on rib cage
 - Stop, tickle the nose, allow the cow to push out some swallowed amniotic fluid
 - Sometimes the cow will finish expelling the calf





Hiplocked Calves

- Hiplocked calves cause calving paralysis
- Make sure calf's pelvis is rotated
 - If not, repel calf to rotate
- If calf is rotated you can walk the hips through the pelvis by applying traction at a downward angle
- If using a calf jack, after decreasing pressure, lever calf as downward as possible
- If still locked, and calf is dead, amputate external portion of calf, repel remainder, and seek veterinary intervention







Roll that gorgeous Speckle Park calf over! Preventing hip lock when delivering a calf.



Enoch the Cow Vet 77.1K subscribers







Immediately Post Calving

- Get calf breathing
 - Position sternally, dog sitting
 - Stimulate breathing
 - Bit of straw up the nose
- Confine with mother
 - Water for dam
- Assure colostral consumption
 - Milk out dam if poor mother
 - Then tube calf with McGraff Calf Feeder
 - Stand hobbled dam in crush





Colostral Intake

- Only way of naturally transferring maternal immunity
- Shown to be imperative for calf hood health and can impact calf's entire life
- Receptors for absorption begin declining after first 12 hours of life
 - Early consumption imperative





Colostral Components

	Colostrum	Milk
Immunoglobulins(%)	6.0	.09
Proteins (%)	14.0	3.1
Fat (%)	6.7	3.5
Lactose (%)	2.7	5.0
Calcium (%)	.26	.13
Phosphorus (%)	.24	.09
Vitamin A (IU/qt)	9000	850





Spare Colostrum

- Colostrum can be stored frozen for over a year
 - If cow or heifer loses calf, collect into a plastic bottle and store for emergency use
 - McGraff Calf Feeders provide a quick, low-risk method of transferring liquids to calves with poor suckle reflex





Assured ingestion of Colostrum



mea

FΟ

Faster Both Effective



Obese Calving Heifers

- Excess fat lines pelvis diminishing pelvic area
- Calves may be larger due to excess feed
- Overconditioned cows may be in unrecognized negative plane of nutrition
 - Lack energy for labor
 - Decreased fetal viability
 - More likely to have an abnormal posture





Drafting Obese Heifers

- Draft into multiple mobs based on BCS
- Each mob can go on an appropriate plane of nutrition
- Smaller mobs easier to inspect for heifers in trouble





Prepartum Nutrition

- Beware of perinatal negative energy balance
 - Don't starve your girls at the last minute!
- Attempt to maintain a BCS of 3.0 throughout pregnancy
 - If overconditioned, work on their BCS in the middle trimester
 - Not while joining
 - Not near calving





Prepartum Nutrition

- Wyoming Study
 - 2 groups of heifers fed over last 100 days of pregnancy
 - 1st group fed to lose 6 kilos over period
 - 2nd group fed to gain 36 kilos over period
 - 28% vs 41% showing estrus by 40 days
 - 1st group calves 2 kgs lighter
 - Same proportion of dystocia
 - Better survivability of calves from 2nd group
 - Better weaning weights in calves from 2nd group





Prepartum Nutrition

- Montana Study
 - 2 groups of heifers fed over last 90 days of pregnancy
 - 1st group fed to maintain weight over period
 - 2nd group fed to gain weight over period
 - 1st group took 20 days longer to subsequent conception
 - 1st group had a 18% lower subsequent conception rate
 - Calves from 1st group were 2kgs lighter
 - Same proportion of dystocia
 - 5 kgs better weaning weights in calves from 2nd group







Abnormal Presentation, Position, or Posture



Elbow Lock

- Due to incompletely extended forelimbs
- Foreleg of calves hits floor of pelvis
- Calf's hooves directly below chin of calf
- Most common in heifers
- Can be one or both legs
- To correct, repel head of calf and straighten each leg individually





Head Back





Head Back

- Confirm orientation of calf
 - Backwards or forwards?
 - Head deviated left, right or ventrally?
- Often posture of stressed calves
 - Even after correction may prove hard pull
 - Foetal oversize
 - Loss of lubrication
- May have to temporarily repel one leg to make room for head manipulation





Head Back

- Goal is to repel the body of the calf while applying traction to the head
 - By Hand
 - Grasp the muzzle
 - Place thumb and forefinger in the eye sockets
 - Do not grab the lower jaw
 - Mandibular symphysis is very weak
 - Teeth are very loose
 - Head snare or loop of rope
 - Place snare or loop around the poll behind the ears with loop in mouth





Retained Forelimb







Retained Forelimb

- One or both legs
- Fully flexed or bent at the knee
- Goal is to secure control of the head, repel the calf, and replace legs without damaging the uterus
- If fully flexed
 - Grab leg pulling it towards you till flexed at the knee





Retained Forelimb

- Correcting when flexed at knee
 - Feel down limb till you can isolate the hoof
 - Cup the hoof in your hand to protect uterus
 - Two handed technique
 - Repel knee laterally and upwards while bringing hoof medially and out
 - You can use a rope on the hoof
 - You can also attempt to manipulate the knee indirectly one handed while grasping the fetlock directing the hooves medially





Retained Hindlimb



Retained Hindlimb

- Very similar to correcting retained forelimb
- Get hindlimb into flexed hock position
- Grasp hoof
- Repel hock up and laterally while directing hoof medially and out
- Repel the calf if you need more room to work





Retained Hindlimb

- Fairly easy to pull once both limbs are up
- Be aware of tail
 - Could be flagging up and traumatize dam
- Rotate pelvis of calf 60 to 90 degrees
- Dual traction slightly upward pull initially
- Rule: If hocks can be delivered beyond the vulva you should be able to pull the calf
- Once hips are past return calf to normal rotation
- Must pull calf from then on out in a timely fashion
 - Umbilicus is compromised before calf has access to air
 - Can break ribs or spine with excess traction





Transverse presentation

- Calf lying sideways
 - If you can manipulate calf about, attempt to orient so as to pull calf hindlegs first
- If calf presented with it's back to the pelvis cow may have been in extended 1st stage of labor
- If calf presented all four feet to pelvis will feel like a set of twins.





Twins

- Tend to be early
- Usually undersized easily manipulated calves
- Usually one calf forwards and one in reverse
- Extract closer calf after repelling second calf
 - If in doubt extract reverse calf first
- Good idea to routinely check for second calf
 - Especially with small calf dystocias





Upside Down Calf







Upside Down Calf

- Fairly rare
- Upside down hooves
 - Could be a backwards calf
 - Forelimb if fetlock and carpus joint flex same way
 - Hindlimb if fetlock and tarsus joint flex oppositely
- Can not pull calf upside down
- Apply plenty of lube
- Cross limbs and apply rotational force





Professional Intervention

- If you have not made progress after a half hour of trying
- If you can not budge the calf
- If you recognize that you are over your head
- Professional Procedures Required
 - Caesarean
 - Fetotomy
 - Prolapse





Professional Intervention Tools

- Epidural
 - Lidocaine infused into distal spinal column
 - Anaesthesia of vulva
 - Stops cow from pushing
 - Makes much easier to perform manipulations and repel calf
- Planipart
 - Relaxes uterus
 - Creates more room to manipulate calf
 - Gives us extra time to stitch up uterus after caesarian




Professional Intervention Tools

- Episiotomy
 - Making an incision in the vulva to ease dilivery
 - Epidural Required
 - Incision made at 10 or 2 O' clock position
 - Alternative to uncontrolled tearing
 - Must be stitched up afterwards







- Extraction of choice for live undeliverable calves or when fetotomy is not an option on dead calves
- Excellent success rate for cow and calf if calf is alive or recently deceased
 - Cows can be bred back and usually fall pregnant
 - May cull for genetic reasons
 - If calf was dead or dies would be advisable to market cow after withhold





Caesarean

- Easiest in crush with split side gate
- Can be done with heifer cast on her side
- Epidural to keep heifer from straining
- Give uterine relaxant
- Clip up left flank
- Local block over area of skin incision
- Five layer abdominal incision





Caesarean

- Isolate and bring to incision right hind leg of calf
- Incise uterus
- Extract calf
- Stitch up uterus
- Stitch up abdominal incision with three layer closure
- Give antibiotics, oxytocin
- Excellent success rate





Fetotomy

- Method of choice for extracting an undeliverable dead foetus
- Essentially uses a guarded wire saw to dismember the foetus to allow piecemeal extraction (approx. 6 piece)
- Excellent for dealing with hip locked foetuses
- Minimizes trauma to dam
- May need to lavage uterus after fetotomy
- Excellent success rate





Uterine Prolapse

- Eversion of Uterus
 - Thought to be due to a horn of uterus entering the cervix
 - Absolutely related to excessive traction applied to calf
 - Only pull calf when cow is pushing
 - Strength of two men
 - Cervix pulled outward during hard pull
 - Fairly easy to replace
 - With appropriate pharmacological assistance





Uterine Prolapse

- Veterinary Intevention
 - Epidural to keep cow from pushing
 - Replace uterus
 - Stitch vulva closed
 - Insert pessaries
 - Give systemic antibiotics
 - Give oxytocin to stimulate uterus to contract
 - Remove stitch in a couple of weeks





Uterine Prolapse

- Success Rate Excellent if Cow is Standing
 - Occasionally cow has torn one or both of her uterine arteries
 - Remain compressed when uterus is out
 - Begin bleeding after uterus is replaced
 - Cow bleeds uncontrollably into her abdomen
- Down cows have a poorer prognosis
- Handle very quietly and carefully until help can arrive
 - Emergency, but if kept quiet are repairable for several hours





Vaginal Prolapse

- Eversion of Vagina
 - Usually prior to calving
- Veterinary Intervention
 - Epidural to keep from pushing
 - Replace vagina
 - Place button though vagina out to skin above pelvis
 - Antibiotics
 - Remove button a couple of weeks later
 - Scarred down by then
 - Heritable trait





Inducing Labor

- Management tool for mob of heifers with a high degree of dystocia
- Initiate labor prematurely
 - Calf grows at a significant rate towards the end of gestation
 - A week could be the difference between an easy and a hard labor
 - Easier to predict and prepare for dystocias





Inducing Labor

- Quick Program
 - Heifer calves usually 36 hours later
 - Only used on heifers that are within a couple of weeks of calving
 - Heifer must be bagged up and springing
- Slower Program
 - Advances pregnancy by a couple of weeks
 - Harder to predict actual onset of calving
 - Some animals do not respond





Calving Paralysis

- Sciatic and Obturator nerve damage
 - Due to direct trauma and soft tissue swelling around nerves
- Associated with dystocia
 - Rotating hips and avoiding excessive tractive force will help prevent syndrome when delivering calves
- Secondary Peroneal nerve damage from prolonged lateral recumbency





Calving Paralysis

- Keys to Management
 - Steroids immediately!
 - Bedding for downer
 - Water and feed
 - Attempt to keep cow sternal with legs tucked up under her
 - Roll as frequently as you can
 - Get cow up with hip lifters or sling





Hip Lifters







Drift Calving

- Moving the pairs on to greener pastures
 - Increase milk production
 - Get mothers cycling sooner in preparation for next breeding season
- Calves are both more susceptible to and more likely to spread disease
- Decreases mismothering and "grannying"





Summary

- Calves are the saleable product
- Perinatal mortality can be managed effectively
 - Effective observational management
 - Timely Intervention
 - Skilled Intervention
 - Timely Veterinary Intervention
 - Post Calving Management



AN OUNCE OF PREVENTION IS WORTH A POUND IN CURE

Benjamin Franklin











MLA Producer Demonstration Site

- Integrating Fixed Time AI into Commercial Heifer Mating Programs
 - 50:50 Based on Last Digit of Ear Tag
 - 50% of Heifers Synchronized and AI'd on Mating Start Date
 - Other 50% of Heifers Exposed to Bulls on Mating Start Date
 - Heifers Boxed 10 Days After Mating Start Date
 - 15 Sites
 - Approximately 2450 Heifers Enrolled







Dystocia

	Integrated FTAI				Syndicate Mate	Dustasia	Dustasia %	
Farm	Observed Calvings	Dystocia	% Dystocia	Observed Calvings	Dystocia	% Dystocia	Dystocia Reduction	Dystocia % Reduction
A.1	128	13	10.2%	147	10	6.8%	-3.4%	-50.0%
B.1	19	0	0.0%	18	0	0.0%	0.0%	0.0%
C.1	19	0	0.0%	20	4	20.0%	20.0%	100.0%
D.1	22	1	4.6%	22	7	31.8%	27.2%	85.5%
E.1	29	2	6.9%	21	6	28.6%	21.7%	75.9%
F.1	42	1	2.4%	31	0	0.0%	-2.4%	-100.0%
G.1	89	5	5.6%	88	4	4.6%	-1.0%	-21.7%
A.2	131	4	3.1%	135	2	1.5%	-1.6%	-106.7%
F.2	41	2	4.9%	34	0	0.0%	-4.9%	-100.0%
G.2	73	4	5.5%	70	6	8.6%	3.1%	36.0%
A.3	110	8	7.3%	109	7	6.4%	-0.9%	-13.2%
G.3	76	3	3.9%	55	6	10.9%	7.0%	63.8%
H.3	79	7	8.9%	85	9	10.6%	1.7%	16.3%
1.3	10	1	10.0%	4	0	0.0%	-10.0%	-100.0%
J.3	12	0	0.0%	10	2	20.0%	20.0%	100.0%
Site Average			4.9%			10.0%	5.1%	51.1%
Combined Dataset	880	51	5.80%	849	63	7.42%	1.63%	21.9%





Fsiperanda

Providy delta

Dystocia Rate Value Difference

- Producer Group Survey
 - Estimated Dystocia Event Cost = \$200
 - 1.63% Difference Favouring FTAI
 - \$3.26 Difference















Calf Mortality

Farm	Integrated FTAI				Syndicate Mated			
	Observed Calvings	Calf Mortality	% Calf Mortality	Observed Calvings	Calf Mortality	% Calf Mortality	Mortality Reduction	Mortality % Reduction
A.1	128	8	6.3%	147	10	6.8%	0.6%	8.1%
B.1	19	0	0.0%	18	0	0.0%	0.0%	0.0%
C.1	19	0	0.0%	20	2	10.0%	10.0%	100.0%
D.1	22	1	4.5%	22	3	13.6%	9.1%	66.7%
E.1	29	0	0.0%	21	3	14.3%	14.3%	100.0%
F.1	42	0	0.0%	31	0	0.0%	0.0%	0.0%
G.1	89	4	4.5%	88	6	6.8%	2.3%	34.1%
A.2	131	2	1.5%	135	1	0.7%	-0.8%	-106.1%
F.2	41	2	4.9%	34	1	2.9%	-1.9%	-65.9%
G.2	73	2	2.7%	70	4	5.7%	3.0%	52.1%
A.3	110	2	1.8%	109	5	4.6%	2.8%	60.4%
G.3	76	1	1.3%	55	6	10.9%	9.6%	87.9%
Н.3	79	2	2.5%	85	4	4.7%	2.2%	46.2%
1.3	10	1	10.0%	4	0	0.0%	-10.0%	-100.0%
J.3	12	0	0.0%	10	2	20.0%	20.0%	100.0%
Site Average			2.7%			6.7%	4.1%	60.4%
Combined Dataset	880	25	2.84%	849	47	5.54%	2.70%	48.7%





Esioeranide



Calf Mortality Value Difference

- Producer Group Survey
 - Estimated Calf Mortality Cost = \$500
 - 2.7% Difference Favouring FTAI
 - \$13.50 Difference











Heifer Mortality

	Integrated FTAI				Syndicate Mater			
Farm	Observed Calvings	Heifer Mortality	% Heifer Mortality	Observed Calvings	Heifer Mortality	% Heifer Mortality	Mortality Reduction	Mortality % Reduction
A.1	128	2	1.6%	147	2	1.4%	-0.2%	-14.8%
B.1	19	0	0.0%	18	0	0.0%	0.0%	0.0%
C1	19	0	0.0%	20	0	0.0%	0.0%	0.0%
D.1	22	0	0.0%	22	2	9.1%	9.1%	100.0%
E.1	29	0	0.0%	21	0	0.0%	0.0%	0.0%
F.1	42	0	0.0%	31	0	0.0%	0.0%	0.0%
G.1	89	0	0.0%	88	1	1.1%	1.1%	100.0%
A.2	131	1	0.8%	135	0	0.0%	-0.8%	-100.0%
F.2	41	0	0.0%	34	0	0.0%	0.0%	0.0%
G.2	73	0	0.0%	70	0	0.0%	0.0%	0.0%
A.3	110	0	0.0%	109	0	0.0%	0.0%	0.0%
G.3	76	0	0.0%	55	4	7.3%	7.3%	100.0%
H.3	79	0	0.0%	85	0	0.0%	0.0%	0.0%
1.3	10	0	0.0%	4	0	0.0%	0.0%	0.0%
J.3	12	0	0.0%	10	2	20.0%	20.0%	100.0%
Site Average			0.2%			2.6%	2.4%	94.0%
Combined Dataset	880	3	0.34%	849	11	1.30%	0.95%	73.7%





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Heifer Mortality Value Difference

- Producer Group Survey
 - Estimated Heifer Mortality Cost = \$2000
 - 0.95% Difference Favoring FTAI
 - \$19.00 Difference







Thank you for your attention

enoch@swansvet.com (08) 9071 5777 0427 716 907

-Join More Heifers -Join Short and Early -Preg Test Early -Calve with Feed -Wean Early